

# MTRK 156B: MEDIUM/ HEAVY TRUCK ELECTRICAL/ ELECTRONIC SYSTEMS II

## Citrus College Course Outline of Record

Heading	Value
Effective Term:	Fall 2022
Credits:	4
Total Contact Hours:	114
Lecture Hours :	54
Lab Hours:	60
Hours Arranged:	0
Outside of Class Hours:	108
Prerequisite:	MTRK 156A or AUTO 156 or by department consent based upon individual's work experience and ASE certifications or manufacturer certifications.
Strongly Recommended:	MATH 144.
Transferable to CSU:	Yes
Transferable to UC:	No
Grading Method:	Standard Letter, Pass/No Pass

## Catalog Course Description

Intended for those seeking a career in the medium and heavy duty truck service and repair industry, course is one component of the MTRK program. This class covers advanced electrical and electronic systems theory, along with inspection, diagnosis, service and repair of specific accessory systems including supplemental restraint, navigation, entertainment, power windows/locks/seats, customizable body electronics, hybrid vehicle controls and multiplex systems. Prepares students for ASE Electrical and Electronic Systems (T6) certification. 54 lecture hours, 60 lab hours.

## Course Objectives

- complete ninety-five percent (95%) of Priority 1 (P-1), seventy percent (70%) of Priority 2 (P-2) twenty-five percent (25%) of the Priority 3 (P-3) required National Automotive Technician Education Foundation (NATEF) objectives for Electrical (T6). Please see attached NATEF objectives (pages 30-31) or [www.natef.org](http://www.natef.org) for the most current objectives.
- Demonstrate knowledge of electronic system components and circuit layout theory, operation and application.
- Perform scan-tool based diagnostics and computer networking diagnostics.
- Perform inspections and diagnostics on 12/24 volt systems using DMMs and oscilloscopes.
- Identify and diagnose input and output signals form electronic sources using DMM and oscilloscope.

## Major Course Content

1. Advanced Electrical and Electronic Systems Theory
  - a. Supplemental restraint systems inspection, diagnosis, service & repair
  - b. Navigation inspection, diagnosis, service & repair
  - c. Entertainment systems inspection, diagnosis, service & repair
  - d. Power windows/locks/seats inspection, diagnosis, service & repair
  - e. Customizable body electronics inspection, diagnosis, service & repair
  - f. Multiplex systems inspection, diagnosis, service & repair
  - g. Tractor cab amenities and their operation and repair
  - h. Trailer electrical connections and electrical devise inspection, diagnosis, service & repair
2. DMM and Oscilloscope Diagnostics
  - a. Electrical signal inspection using DMM
  - b. Electrical signal inspection using oscilloscope
  - c. Electronic fault diagnosis using DMM
  - d. Electronic fault diagnosis using oscilloscope

## Lab Content

1. Advanced Electrical and Electronic Systems
  - a. Supplemental restraint systems inspection, diagnosis, service & repair
  - b. Navigation inspection, diagnosis, service & repair
  - c. Entertainment systems inspection, diagnosis, service & repair
  - d. Power windows/locks/seats inspection, diagnosis, service & repair
  - e. Customizable body electronics inspection, diagnosis, service & repair
  - f. Multiplex systems inspection, diagnosis, service & repair
  - g. Tractor and trailer systems inspection, diagnosis & service.

## Suggested Reading Other Than Required Textbook

1. Medium and Heavy Duty Truck/Equipment periodicals
2. Other professional journals

## Examples of Required Writing Assignments

Precis of recent industry related technology research using APA format.

## Examples of Outside Assignments

1. Complete weekly ASE preparation exam homework questions at the end of each text chapter
2. Complete post lab critical thinking questions
3. Take the T6 ASE test

## Instruction Type(s)

Lecture, Lab, Online Education Lecture